

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: JOHNSON, L.
- (ii) TITLE OF INVENTION: Human Murine Chimeric Antibodies Against Respiratory Syncytical Virus
- (iii) NUMBER OF SEQUENCES: 49
- (iv) CORRESPONDENCE ADDRESS:
- (A) ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI, STEWART & OLSTEIN
  - (B) STREET: 6 BECKER FARM ROAD
  - (C) CITY: ROSELAND
  - (D) STATE: NEW JERSEY
  - (E) COUNTRY: USA
  - (F) ZIP: 07068
- (v) COMPUTER READABLE FORM:
- (A) MEDIUM TYPE: 3.5 INCH DISKETTE
  - (B) COMPUTER: IBM PS/2
  - (C) OPERATING SYSTEM: MS-DOS
  - (D) SOFTWARE: Word Perfect 5.1
- (vi) CURRENT APPLICATION DATA:
- (A) APPLICATION NUMBER: 08/290,592
  - (B) FILING DATE: August 15, 1994
  - (C) CLASSIFICATION: 424
- (vii) PRIOR APPLICATION DATA
- (A) APPLICATION NUMBER: 07/813,372
  - (B) FILING DATE: December 23, 1991
- (viii) ATTORNEY/AGENT INFORMATION:
- (A) NAME: Olstein, Elliot M.
  - (B) REGISTRATION NUMBER: 24,025
  - (C) REFERENCE/DOCKET NUMBER: 469201-257
- (ix) TELECOMMUNICATION INFORMATION:
- (A) TELEPHONE: 201-994-1700
  - (B) TELEFAX: 201-994-1744

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS
- (A) LENGTH: 27 BASE PAIRS
  - (B) TYPE: NUCLEIC ACID
  - (C) STRANDEDNESS: SINGLE
  - (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:  
AGCGGATCCA GGGGCCAGTG GATAGAC

27

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 17 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:  
TGGATGGTGG GAAGATG

17

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 15 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:  
GGCCAGTGGA TAGAC

15

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 16 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:  
TACAGTTGGT GCAGCA

16

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 24 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:  
GATGGATCCA GTTGGTGCAG CATC

24

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS
  - (A) LENGTH: 30 NUCLEOTIDES
  - (B) TYPE: NUCLEIC ACID
  - (C) STRANDEDNESS: SINGLE
  - (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: Oligonucleotide
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

CACGTCGACA TTCAGCTGAC CCAGTCTCCA

30

(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS
  - (A) LENGTH: 30 NUCLEOTIDES
  - (B) TYPE: NUCLEIC ACID
  - (C) STRANDEDNESS: SINGLE
  - (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: Oligonucleotide
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

CGGAATTCAG GTNNANCTGC AGNAGTCWGG

30

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS
  - (A) LENGTH: 28 NUCLEOTIDES
  - (B) TYPE: NUCLEIC ACID
  - (C) STRANDEDNESS: SINGLE
  - (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: Oligonucleotide
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

CCCAAGCTTG GTCCCCCTC CGAACGTG

28

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS
  - (A) LENGTH: 39 NUCLEOTIDES
  - (B) TYPE: NUCLEIC ACID
  - (C) STRANDEDNESS: SINGLE
  - (D) TOPOLOGY: LINEAR
- (ii) MOLECULE TYPE: Oligonucleotide
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GGCGTCGACT CACCATGGAC ATGAGGGTCC YCGCTCAGC

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(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 57 NUCLEOTIDES  
 (B) TYPE: NUCLEIC ACID  
 (C) STRANDEDNESS: SINGLE  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: Oligonucleotide  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:  
 GTCACCATCA CTTGCAAGTG CCAGCTGAGT GTAGGTTACA TGCACTGGTA CCAGCAG 57
- (2) INFORMATION FOR SEQ ID NO:11:  
 (i) SEQUENCE CHARACTERISTICS  
 (A) LENGTH: 54 NUCLEOTIDES  
 (B) TYPE: NUCLEIC ACID  
 (C) STRANDEDNESS: SINGLE  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: Oligonucleotide  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:  
 GCAACTTATT ACTGCTTTCA GGGGAGTGGG TACCCATTCA CGTTCGGAGG GGGG 54
- (2) INFORMATION FOR SEQ ID NO:12:  
 (i) SEQUENCE CHARACTERISTICS  
 (A) LENGTH: 32 NUCLEOTIDES  
 (B) TYPE: NUCLEIC ACID  
 (C) STRANDEDNESS: SINGLE  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: Oligonucleotide  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:  
 GTGACCAACA TGGACCCTGC TGATACTGCC AC 32
- (2) INFORMATION FOR SEQ ID NO:13:  
 (i) SEQUENCE CHARACTERISTICS  
 (A) LENGTH: 29 NUCLEOTIDES  
 (B) TYPE: NUCLEIC ACID  
 (C) STRANDEDNESS: SINGLE  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: Oligonucleotide  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:  
 CCATGTTGGT CACTTTAAGG ACCACCTGG 29
- (2) INFORMATION FOR SEQ ID NO:14:  
 (i) SEQUENCE CHARACTERISTICS  
 (A) LENGTH: 37 NUCLEOTIDES  
 (B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: Oligonucleotide  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:  
 CCAGTTTACT AGTGTTCATAG ATCAGGAGCT TAGGGGC

37

(2) INFORMATION FOR SEQ ID NO:15:  
 (i) SEQUENCE CHARACTERISTICS  
 (A) LENGTH: 37 NUCLEOTIDES  
 (B) TYPE: NUCLEIC ACID  
 (C) STRANDEDNESS: SINGLE  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: Oligonucleotide  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:  
 TGACACTAGT AAAGTGGCTT CTGGGGTCCC ATCAAGG

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(2) INFORMATION FOR SEQ ID NO:16:  
 (i) SEQUENCE CHARACTERISTICS  
 (A) LENGTH: 97 AMINO ACIDS  
 (B) TYPE: AMINO ACID  
 (D) TOPOLOGY: LINEAR  
 (ii) MOLECULE TYPE: PROTEIN  
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:  
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly  
                   5                  10                  15  
 Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Asn  
                   20                  25                  30  
 Ser Tyr Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
                   35                  40                  45  
 Glu Trp Met Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr  
                   50                  55                  60  
 Ala Gln Lys Phe Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser  
                   65                  70                  75  
 Thr Ser Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp  
                   80                  85                  90  
 Thr Ala Val Tyr Tyr Cys Ala

## (2) INFORMATION FOR SEQ ID NO:17:

## (i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 117 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly  
                   5                  10                  15  
 Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Phe Asn Ile Lys  
                   20                  25                  30  
 Asp Tyr Tyr Ile Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
                   35                  40                  45  
 Glu Trp Ile Gly Trp Ile Asp Pro Glu Asn Gly Asn Thr Val Phe  
                   50                  55                  60  
 Asp Pro Lys Phe Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser  
                   65                  70                  75  
 Thr Ser Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp  
                   80                  85                  90  
 Thr Ala Val Tyr Tyr Cys Ala Tyr Tyr Gly Thr Ser Ser Phe Asp  
                   95                  100                 105  
 Phe Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser  
                   110                 115

## (2) INFORMATION FOR SEQ ID NO:18:

## (i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 117 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

## (ii) MOLECULE TYPE: PROTEIN

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly  
                   5                  10                  15



	65	70	75
Ser Ser Leu Gln Pro Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln			
	80	85	90
Tyr Asn Ser Tyr Ser			
	95		

(2) INFORMATION FOR SEQ ID NO:20

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 107 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val		
	5	10
Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn		
	20	25
Arg Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys		
	35	40
Leu Leu Ile Tyr Arg Ala Asn Arg Leu Val Asp Gly Val Pro Ser		
	50	55
Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile		
	65	70
Ser Ser Leu Gln Pro Asp Asp Phe Ala Thr Tyr Tyr Cys Leu Gln		
	80	85
Phe His Glu Phe Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu		
	95	100
		105

Ile Lys

(2) INFORMATION FOR SEQ ID NO:21

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 107 AMINO ACIDS

(B) TYPE: AMINO ACID



(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Asp Ile Lys Met Thr Gln Ser Pro Ser Ser Met Tyr Val Ser Leu  
5 10 15  
Gly Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn  
20 25 30  
Arg Tyr Leu Asn Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys  
35 40 45  
Thr Leu Ile His Arg Ala Asn Arg Leu Val Asp Gly Val Pro Ser  
50 55 60  
Arg Phe Ser Gly Ser Gly Ser Gly Gln Glu Tyr Ser Leu Thr Ile  
65 70 75  
Ser Ser Leu Glu Phe Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln  
80 85 90  
Phe His Glu Phe Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu  
95 100 105  
Ile Lys

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 117 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

CCATGGACTG GACCTGGAGG GTCTTCTGCT TGCTGGCTGT AGCACCAGGT GCCCACTCCC 60  
AGGTGCAGCT GGTGCAGTCT GGAGCTGAGG TGAAGAAGCC TGGAGCCTCA GTGAAGG 117

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 120 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

CACTTCTTCG GACCTCGGAG TCACTTCCAA AGGACGTTCC GTAGACCTAA GTTGTAATTC 60

CTGATGATGT AAATGACCCA CGCTGTCCGA GGACCTGTTC CCGAGCTCAC CTACCCAACC 120

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 119 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

GGGCTCGAGT GGATGGGTTG GATTGACCCT GAGAATGGTA ATACTGTGTT TGACCGAAGT 60

TCCAGGGCAG AGTCACCATG ACCAGGGACA CGTCCACGAG CACAGTCTAC ATGGAGCTG 119

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 137 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

GGTGCTCGTG TCAGATGTAC CTCGACTCGT CGGACTCTAG ACTCCTGTGC CGGCACATAA 60

TGACACGCAT GATGCCATGT TCGAGGAAAC TGAAGACCCC GGTTCCTGG TGAGAGTGTC 120

ACTCGAGTAT TCCTAGG 137

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 106 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

CCATGGACAT GAGGGTCCCC GCTCAGCTCC TGGGGCTCCT GCTGCTCTGG CTCCCAGGTG 60

CCAAATGTGA TATCCAGATG ACCCAGTCTC CTTCCACCCT GTCTGC 106

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 107 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

GTCAGAGGAA GGTGGGACAG ACGTAGACAT CCTCTGTCTC AGTGGTAGTG AACGTTCCGC 60  
TCAGTCCTGT AATTATCCAT AAATTTGACC ATGGTCGTCT TTGGGCC 107

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 107 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

GAAAGCCCCT AAGCTCCTGA TCTATCGTGC AAACAGATTG GTAGATGGGG TCCCATCAAG 60  
GTTTCAGCGGC AGTGGATCTG GGACAGAATT CACTCTCACC ATCAGCA 107

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 116 NUCLEOTIDES
- (B) TYPE: NUCLEIC ACID
- (C) STRANDEDNESS: SINGLE
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

GTCTTAAGTG AGAGTGGTAG TCGTCGGACG TCGGACTACT AAAACGTTGA ATAATGACGG 60  
ATGTCAAAGT ACTCAAAGGC ATGTGCAAGC CTCCCCCCTG GTTCGAACCT TATTTT 116

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS

- (A) LENGTH: 123 AMINO ACIDS
- (B) TYPE: AMINO ACID
- (D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr  
5 10 15

Gln Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser

0015310-02185160

	20	25	30
Ser Ser Gly Met Cys Val Gly Trp Ile Arg Gln Pro Pro Gly Lys			
	35	40	45
Ala Leu Glu Trp Leu Ala Asp Ile Glu Trp Asp Asp Asp Lys Asp			
	50	55	60
Tyr Asn Thr Ser Leu Asp Thr Arg Leu Thr Ile Ser Lys Asp Thr			
	65	70	75
Ser Lys Asn Gln Val Val Leu Thr Val Thr Asn Met Asp Pro Ala			
	80	85	90
Asp Thr Ala Thr Tyr Tyr Cys Ala Arg Ile Thr Val Ile Pro Ala			
	95	100	105
Pro Ala Gly Tyr Met Asp Val Trp Gly Arg Gly Thr Pro Val Thr			
	110	115	120
Val Ser Ser			

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 120 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr			
	5	10	15
Gln Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser			
	20	25	30
Thr Ser Gly Met Ser Val Gly Trp Ile Arg Gln Pro Ser Gly Lys			
	35	40	45
Ala Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp			
	50	55	60
Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr			

	65	70	75
Ser Lys Asn Gln Val Val Leu Lys Val Thr Asn Met Asp Pro Ala			
	80	85	90
Asp Thr Ala Thr Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp			
	95	100	105
Tyr Phe Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser			
	110	115	120

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 120 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Gln Val Glu Leu Gln Glu Ser Gly Pro Gly Ile Leu Gln Pro Ser			
	5	10	15
Gln Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser			
	20	25	30
Thr Ser Gly Met Ser Val Gly Trp Ile Arg Gln Pro Ser Gly Glu			
	35	40	45
Gly Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp			
	50	55	60
Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr			
	65	70	75
Ser Ser Asn Gln Val Phe Leu Lys Ile Thr Gly Val Asp Thr Ala			
	80	85	90
Asp Thr Ala Thr Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp			
	95	100	105
Tyr Phe Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser			
	110	115	120

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 95 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val  
5 10 15  
Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser  
20 25 30  
Ser Trp Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys  
35 40 45  
Leu Leu Ile Tyr Asp Ala Ser Ser Leu Glu Ser Gly Val Pro Ser  
50 55 60  
Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile  
65 70 75  
Ser Ser Leu Gln Pro Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln  
80 85 90  
Tyr Asn Ser Tyr Ser  
95

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 106 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val  
5 10 15  
Gly Asp Arg Val Thr Ile Thr Cys Lys Cys Gln Leu Ser Val Gly  
20 25 30  
Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu

35	40	45
Trp Ile Tyr Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ser Arg		
50	55	60
Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser		
65	70	75
Ser Leu Gln Pro Asp Asp Phe Ala Thr Tyr Tyr Cys Phe Gln Gly		
80	85	90
Ser Gly Tyr Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile		
95	100	105
Lys		

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 106 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro		
5	10	15
Gly Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Gly		
20	25	30
Tyr Met His Trp Tyr Gln Gln Lys Ser Ser Thr Ser Pro Lys Leu		
35	40	45
Trp Ile Tyr Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Gly Arg		
50	55	60
Phe Ser Gly Ser Gly Ser Gly Asn Ser Tyr Ser Leu Thr Ile Ser		
65	70	75
Ser Ile Gln Ala Glu Asp Val Ala Thr Tyr Tyr Cys Phe Gln Gly		
80	85	90
Ser Gly Tyr Pro Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile		
95	100	105

Lys

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 63 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

GCCTGAGCTC ACGGTGACCG TGGTCCCGCC GCCCCAGACA TCGAAGTAGC AGTTCGTGAT CAT 63

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 79 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

GTGGGTGACT TTAAGGACCA CCTGGTTTTT GGAGGTATCC TTGGAGATTG TGAGCCGGCT 60  
CTTCAGCCAT GGATTATAG 79

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 89 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

GCGCCTTCCC TGGGGGCTGA CGAATCCAGC CTACACTCAT ACCAGAAGTG CTCAGTGAAA 60  
ACCCAGAGAA GGTGGAGGTC AGTGTGAGG 89

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 70 NUCLEOTIDES

(B) TYPE: NUCLEIC ACID

(C) STRANDEDNESS: SINGLE

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: Oligonucleotide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:



CCAGGTCACC TTAAGGGAGT CTGGTCCTGC GCTGGTGAAA CCCACACAGA CCCTCACACT 60  
GACCTGCACC 70

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS  
(A) LENGTH: 78 NUCLEOTIDES  
(B) TYPE: NUCLEIC ACID  
(C) STRANDEDNESS: SINGLE  
(D) TOPOLOGY: LINEAR  
(ii) MOLECULE TYPE: Oligonucleotide  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:  
CAGCCCCCAG GGAAGGCCCT GGAGTCGCTT GCAGACATTT GGTGGGATGA CAAAAGGAC 60  
TATAATCCAT CCCTGAAG 78

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS  
(A) LENGTH: 64 NUCLEOTIDES  
(B) TYPE: NUCLEIC ACID  
(C) STRANDEDNESS: SINGLE  
(D) TOPOLOGY: LINEAR  
(ii) MOLECULE TYPE: Oligonucleotide  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:  
GGTCCTTAAA GTGACCAACA TGGACCCTGC TGATACTGCC ACTTACTACT GTGCTCGGTC 60  
TATG 64

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS  
(A) LENGTH: 72 NUCLEOTIDES  
(B) TYPE: NUCLEIC ACID  
(C) STRANDEDNESS: SINGLE  
(D) TOPOLOGY: LINEAR  
(ii) MOLECULE TYPE: Oligonucleotide  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:  
GGCGTCGACT CACCATGGAC TGGACCTGGA GGGTCTTCTG CTTGCTGGCT GTAGCACCAG 60  
GTGCCCCACTC CC 72

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS  
(A) LENGTH: 7 AMINO ACIDS  
(B) TYPE: AMINO ACID  
(D) TOPOLOGY: LINEAR

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Thr Ser Gly Met Ser Val Gly

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### (i) SEQUENCE CHARACTERISTICS

(B) TYPE: AMINO ACID

(ii) MOLECULE TYPE: PROTEIN

Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser

5

10

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### (i) SEQUENCE CHARACTERISTICS

(B) TYPE: AMINO ACID

(ii) MOLECULE TYPE: PROTEIN

Ser Met Ile Thr Asn Trp Tyr Phe Asp Val

5

10

### (i) SEQUENCE CHARACTERISTICS

(B) TYPE: AMINO ACID

(ii) MOLECULE TYPE: PROTEIN

Lys Cys Gln Leu Ser Val Gly Tyr Met His

5

10

### (i) SEQUENCE CHARACTERISTICS

(B) TYPE: AMINO ACID

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Thr Ser Lys Leu Ala Ser

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(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 8 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Phe Gln Gly Ser Gly Tyr Pro Phe

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(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS

(A) LENGTH: 6 AMINO ACIDS

(B) TYPE: AMINO ACID

(D) TOPOLOGY: LINEAR

(ii) MOLECULE TYPE: PROTEIN

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Ser Val Gly Tyr Met His

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